

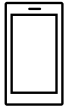







Project Title	A multidisciplinary, data analytics and public participatory approach to better understanding the risks of dementia in ageing			
Reference	15F-1701	Lead	Ulster University, Dr Michaela Black	
Flag				
Taxonomy	Data-driven understanding of cognitive health / dementia population-risk			
Context & Objectives	<ul style="list-style-type: none">It is increasingly accepted that everyday lifestyle and behaviour change can have a positive effect on cognitive wellbeing.By using existing 'Trinity, Ulster and Department of Agriculture' (TUDA) cohort study data that links genetics, lifestyle and behavioural data with cognition this project sought to identify effective dietary and lifestyle intervention options that promote cognitive health and wellbeing among ageing populations.			
Outcomes	<ul style="list-style-type: none">The project used data novel classification models to identify non-invasive predictors of cognitive dysfunction and accurately assess rate of change of cognitive function.Three non-invasive predictors, namely the Timed Up and Go (TUG) score, the age at which an individual left school and whether or not a family member has reported memory concerns could be incorporated into a new screening tool for healthcare professionals to identify individuals in need of further in-depth cognitive evaluation.			
Future Actions	<ul style="list-style-type: none">Implement a new pilot screening tool that uses the non-invasive predictors to enable healthcare professionals to make an initial evaluation, with a high degree of confidence, of cognitive dysfunction and the need (or otherwise) for a full cognitive evaluation.The team plans to conduct further investigations to test the accuracy of predictors in other large cohorts e.g. NICOLA, TUDA and using GPIIP data.Subject to these further investigations, the results provide evidence to identify key targets that could be included in a public health cognitive prevention strategy.			



Project Title	Understanding the Outcome of Memory Service Assessments			
Reference	17-F-1801 (Part 1)	Lead	Northern Health and Social Care Trust, Dr Frances Duffy, with Nightingale Analytics Limited	
Flag				
Taxonomy	Data-driven diagnosis Data-driven understanding of cognitive health / dementia population-risk			
Context & Objectives	<ul style="list-style-type: none">• New cognitive examination tools are being developed to better differentiate between patients with and without cognitive impairment, and to determine different types of Dementia.• By digitising thousands of data-points from post-referral memory service assessments this project explored the potential for data on cognitive examinations to differentiate between dementia and non-dementia subjects, and between different types of dementia.			
Outcomes	<ul style="list-style-type: none">• The study found that approximately 40% of people referred to the memory service team did not have dementia – c.28% were diagnosed with Mild Cognitive Impairment and c.11% had no diagnosis of either Dementia or MCI.• Raising awareness among healthcare professionals of the ability of ACE-III assessments to differentiate between dementia and non-dementia subjects, and implementing routine use of ACE-III at points of entry could significantly reduce the practical and emotional burden associated with such high levels of incorrect referrals.			
Future Actions	<ul style="list-style-type: none">• The team has planned further investigation of Memory Service and Home Support data to validate their understanding of mis-referrals and improve service efficiency.• Development of an algorithm that predicts the outcome of cognitive examinations and an associated digital decision support tool (see 13F 07-09) are being developed and will be piloted within the Northern Health and Social Care Trust – helping to raise awareness, efficiency and effectiveness of dementia diagnoses.• An education campaign among memory service referral agents and roll out of the new digital diagnostic assessment tool.			



Project Title	Widening the Impact of CLEAR Dementia Care ©			
Reference	17-F-1801 (Part 2)	Lead	Northern Health and Social Care Trust, Dr Frances Duffy	
Flag				
Taxonomy	Digital support for dementia practitioners / carers			
Context & Objectives	<ul style="list-style-type: none">Behavioural & Psychological Symptoms of Dementia (BPSD) are often a sign of the stress and distress experienced as a person tries to cope with the daily challenges of living with dementia.CLEAR Dementia Care © is a framework developed by Dr Frances Duffy and the Dementia Home Support Team at the Northern Health and Social Care Trust that helps carers to take a holistic view of dementia behaviours so that they can provide the most effective support and enhance quality of life for people with Dementia.By digitising the CLEAR Dementia Care © tool as a mobile application this project sought to make recognised best practice in Dementia care more accessible to more formal and informal Dementia carers.			
Outcomes	<ul style="list-style-type: none">The CLEAR Dementia Care © application has been created and is now providing information about Dementia and support for carers regarding different types of Dementia, the brain, symptoms, behaviours and loss to Dementia carers around the world.The application has been downloaded more than 500 times since January 2021 and has received positive feedback:<ul style="list-style-type: none">“A brilliant app that provides carers with a holistic view of the person with dementia. App is easy to navigate with a handy "how to use video" and a plethora of information on the types of behaviours that people living with dementia might present. The app also provides a chart that helps you look for patterns in behaviour throughout the week that help the carer reduce distress and improve day to day activities.” – Android User“This App is really easy to use. It’s full of useful information about dementia. I’ve learned so much that will help me support my mum.” – Apple User			
Future Actions	<ul style="list-style-type: none">The team is seeking further feedback on the CLEAR Dementia Care © Application and will use that to further refine the application.Extensive promotion of the application among Dementia carers via GPs, local memory service teams / dementia navigators and the community and voluntary sector will assist in gathering feedback and further refining the application.			



Project Title	Implementation of a dementia data management system for people with learning disability in Northern Ireland			
Reference	01-18-18F	Lead	Ulster University, Dr Tony McGinn	
Flag				
Taxonomy	Data-driven understanding of cognitive health / dementia population-risk			
Context & Objectives	<ul style="list-style-type: none">Dementia affects individuals with learning disabilities and Down's Syndrome differently. They can often experience rapid onset of dementia, have difficulty understanding, and dementia can be harder to diagnose as a consequence. People with Down's Syndrome are particularly susceptible to developing Alzheimer's Disease, with onset starting from as early as 30 years old. Early diagnosis has been shown to improve quality of life prior to severe decline.By collating and digitising information on people with learning disabilities and / or Down's Syndrome across five health trusts, this project sought to create a robust data management system for information required to plan and resource best practice dementia care among Northern Ireland's learning disabled population.			
Outcomes	<ul style="list-style-type: none">The project collated data on individuals with learning disabilities and Down's Syndrome in the Western Health and Social Care Trust – a task that had been ongoing for a number of years.Combining data from the Western Health and Social Care Trust with data collected via another DARUG project in the Northern Health and Social Care Trust and existing data in the Southern Health and Social Care Trust means that snapshots of data on learning disabled and Down's Syndrome populations in three out of five health trusts are now available. However several delays associated with accessing data and recruiting staff meant that a robust means of identifying and monitoring for the purpose of early intervention in cognitive decline among Northern Ireland's learning disabled and Down's Syndrome populations via a centralised data management system has not yet been identified.			
Future Actions	<ul style="list-style-type: none">Create a robust data management system for information required to plan and resource best practice dementia care among Northern Ireland's learning disabled population.			


Project Title	Using data to find out what really matters to carers and people with mild cognitive impairment		
Reference	26F-1801	Lead	Age NI, Laura Stoops, with Dr Frances Duffy
Flag			
Taxonomy	Data driven improvements to the Dementia care pathways		
Context & Objectives	<ul style="list-style-type: none"> There is a lack of structured knowledge regarding what really matters to carers and people with mild cognitive impairment when it comes to the provision of third sector support services. By building the organisation's data analytics capacity and skills this project sought to provide a better understanding of the profile of Age Northern Ireland's service users and their patterns of service use with a view to further improving services in future. 		
Outcomes	<ul style="list-style-type: none"> Significant improvement in understanding the purpose of, and efficiency in data collection across the organisation – embedding an 'impact culture'. <p><i>"It's brought a massive shift in how we capture data and use data – we never thought in as much depth before about what data we were collecting and how we were going to use it."</i></p> <ul style="list-style-type: none"> Increased capacity and capability to make better use of data to support service users and their carers. <p><i>"Because of DARUG we've been able to map out the Age NI pathway – so now we better understand how older people engage with us."</i></p> <ul style="list-style-type: none"> Outputs now routinely used in collection and reporting of dementia services activity and impact both internally and externally to service users, carers, supporters and wider public and policy audiences. 		
Future Actions	<ul style="list-style-type: none"> Gather additional data on carers via routine PPI activities to build a better understanding of carer profiles and service use. Continue to build relationships with academic and clinical partners established and / or strengthened via DARUG. Use findings regarding patterns of service use to plan future service operations and to inform regional policy making on the role of third sector organisations within any new Dementia Care Pathway. 		



Project Title	Enhanced decision support tool for timely diagnosis of dementia				
Reference	13F 07-09	Lead	Ulster University, Dr Ruth Price with Nightingale Analytics Limited		
Flag					
Taxonomy	Data driven diagnosis Data-driven understanding of cognitive health / dementia population-risk Digital support for dementia practitioners / carers				
Context & Objectives	<ul style="list-style-type: none">• Making a Dementia diagnosis is one of the most complex tasks facing health and social care staff, but a timely and accurate diagnosis is critical for getting people the care they need.• By digitising data and underlying tools from existing dementia diagnostic assessments this project sought to develop an enhanced Decision Support Tool (DST) and make it available online to better meet the needs of dementia care practitioners.				
Outcomes	<ul style="list-style-type: none">• The project delivered a unique, ‘at scale’ repository of dementia assessment tools and data – a highly characterised database containing longitudinal data from ~3000 memory service referrals, including demographic, dementia assessment and diagnosis information, all based on clinical expertise.• The data was used to create a predictive algorithm that could produce automated assessment results accurately, consistently and efficiently using more than 30 predictive data points.• The algorithm was embedded within a new online diagnostic tool could that can be used by both Primary Care Practitioners and Dementia Care specialists as a decision support tool for the timely diagnosis of Dementia.				
Future Actions	<ul style="list-style-type: none">• The project team is in the process of obtaining CE marking and FDA approval for the online diagnostic tool.• The online Dementia decision support tool will be piloted among GP practices and secondary care settings within the Northern Health and Social Care Trust – helping to raise awareness, efficiency and effectiveness of dementia diagnoses.				



Project Title	Examining the epidemiology of mild cognitive impairment and subjective cognitive decline in Northern Ireland's older adults			
Reference	04F/0709 and 05F/0709	Lead	Queen's University Belfast, Dr Sharon Cruise	
Flag				
Taxonomy	Data-driven understanding of cognitive health / dementia population-risk Data driven improvements to service user pathways			
Context & Objectives	<ul style="list-style-type: none">• Transition from early-stage Subjective Cognitive Decline (SCD) to mild cognitive impairment (MCI) and to Dementia is not well-documented.• By linking longitudinal survey and administrative prescription data to produce prevalence estimates at low geographic levels this project sought to improve understanding of the transition from early-stage and mild cognitive impairment to dementia.• It also sought to examine the equity of access to services such as memory clinics or disease modifying medication, and factors associated with use of memory / dementia-related healthcare services.			
Outcomes	<ul style="list-style-type: none">• Pooling of NICOLA and The Irish Longitudinal Study on Ageing (TILDA) data enabled all-island analysis of SCD and MCI.• The project highlighted significant differences between self-reporting of SCD and objective evidence of MCI. Approximately 27% of NICOLA participants reported Subjective Cognitive Decline, while only 13% had objective evidence of Mild Cognitive Impairment.			
Future Actions	<ul style="list-style-type: none">• By providing education on SCD patterns and characteristics, and encouraging memory service referral agents (predominantly GPs) to carry out basic cognitive screening tests that rule out reversible causes of cognitive impairment, findings can be used to reduce increasing pressure on memory clinics.			



Project Title	Development of an analytics programme for dementia in Northern Ireland			
Reference	16F-1701	Lead	Queen’s University Belfast, Dr Bernadette McGuinness with Analytics Engines Limited	
Flag				
Taxonomy	Data-driven understanding of cognitive health / dementia population-risk Data driven improvements to service user pathways			
Context & Objectives	<ul style="list-style-type: none">By using data from a range of sources, including Health and Social Care Trusts, GP records, census data and socio-demographic data this project sought to produce a centralised data platform that would enable more granular and efficient analysis of cognitive health, dementia risk and prevalence among the Northern Ireland population.The project sought to integrate clinical datasets with open data that would enhance and augment the quality of information available to and easily accessible by commissioners and health professionals regarding dementia prevalence and care.			
Outcomes	<ul style="list-style-type: none">The project team successfully developed three new data analytics tools, one that allows social care commissioners to explore trends that are relevant for Dementia care population health planning, a second that enables analysis of current and forecast occupancy of care home dementia places, and a third that allows clinical researchers and policy makers to analyse dementia relevant news from a range of websites.			
Future Actions	<ul style="list-style-type: none">Advocate for early access to GPIP data for collaborative research teams so that the analytical models developed can be built upon to include row level data and produce a much more powerful population health management platform.Test the efficacy of care home forecasting (capacity and prevalence) models with Service Improvement Leads and commissioners of care home services.			

Project Title	Using Data to Understand Dementia in Northern Ireland			
Reference	Research Studies	Lead	Queen's University Belfast, Dr Bernadette McGuinness	
Flag				
Taxonomy	Data-driven understanding of cognitive health / dementia population-risk Data driven improvements to service user pathways			
Context & Objectives	<ul style="list-style-type: none">Using row level administrative data accessed via Northern Ireland's Honest Broker trusted research environment for health and social care, this project sought to generate new highly credible academic insights into dementia care in Northern Ireland.			
Outcomes	<ul style="list-style-type: none">Via fourteen detailed academic studies the research team identified several pertinent issues regarding dementia care in Northern Ireland.Key findings that can be referenced at the time of writing include but are by no means limited to; higher rates of drug prescribing to people with dementia in Northern Ireland; a link between certain prescribed drugs and increased mortality rates among people with dementia in Northern Ireland; links between socio-economic and environmental circumstances and both drug prescribing rates and mortality; and the potentially positive effect of care homes on people living with dementia.			
Future Actions	<ul style="list-style-type: none">Finalise remaining research studies.Disseminate research findings to GPs and the general public.Present findings in respect of all completed studies in March 2022.			

Project Title	Clinical Narrative Analytics: Computational Linguistics to Predict Dementia Diagnosis from Descriptive Clinical Text		
Reference	24F-1801	Lead	Queen's University Belfast, Dr Barry Devereux
Project Status			
Taxonomy	Data driven diagnosis		
Context & Objectives	<ul style="list-style-type: none"> The application of artificial intelligence (AI) algorithms and machine learning (ML) has the potential to revolutionize health care, supporting clinicians, providers, and policymakers to plan or implement interventions, detect disease quicker, support therapeutic decision-making, outcome prediction, and increased personalized medicine. To increase the utility of machine learning in healthcare analytics new algorithms and analytical models are required to interpret and classify unstructured text within clinical documentation. By digitising and pre-processing 484 clinical letters this project sought to develop clinical notes analytical software that uses automated tools for analysing clinical letters. 		
Outcomes	<ul style="list-style-type: none"> The project produced a proven, externally validated, state-of-the-art AI system for representing the meaning of sentences in clinical text. The project team has had a focus on identifying commercial applications and has identified a potential use case in identifying subjects for clinical trials and / or wider longitudinal research studies. From a technical data analytics perspective this project has delivered a significant outcome, and as such it has also raised the profile of dementia analytics capability (and Computational Linguistics capability more generally) in Northern Ireland on an international stage. 		
Future Actions	<ul style="list-style-type: none"> The team has produced a prototype client-side clinical letter search tool demonstrates a proof of concept for such a real world system. From a commercial stand-point the team is exploring the potential for the system to be used in the search and selection of patients for clinical trials and / or wider health research – including future Dementia research. However it would be beneficial to also explore how the product may be of further use in less or non-commercial use cases, for example in assisting in identification of disease prevalence at GP practice level to support population health planning. 		

Project Title	Data Analytics Regarding Dementia in People with a Learning Disability: Developing the Full Picture in the Northern Health and Social Care Trust (NHSCT)				
Reference	21F-1801	Lead	Northern Health and Social Care Trust, Dr Sarah Bravey		
Project Status					
Taxonomy	Data-driven understanding of cognitive health / dementia population-risk Data driven improvements to service user pathways				
Context & Objectives	<ul style="list-style-type: none">Individuals with learning disabilities, intellectual disabilities, or Down’s Syndrome are of increased risk to developing dementia. Symptoms misattributed to an individual’s learning disabilities can cause barriers to diagnosis or treatment, and it can be difficult to identify and diagnose individuals with learning disabilities or Down’s Syndrome as having early stage or mild cognitive impairment (MCI) due to onset of dementia.By compiling a register of adults with learning disabilities and Down’s Syndrome who have developed Dementia within the Northern Health and Social Care Trust region this project sought to raise awareness and promote the use of learning and intellectual disability dementia services in the Trust region.				
Outcomes	<ul style="list-style-type: none">The project successfully raised awareness of the need for focus on learning disability and Down’s Syndrome as distinct from Dementia related issues in the general population.The project led to the creation of a Learning Disability-Dementia Care Registry and Care Pathway at health trust level, and an accompanying operational framework that will progress and monitor implementation of the Care Pathway.The project also developed a policy framework for implementing the Learning Disability-Dementia Care Pathway across Northern Ireland.				
Future Actions	<ul style="list-style-type: none">Explore the extent to which the Learning Disability-Dementia Care Registry and Care Pathway is being or can be rolled out across Northern Ireland.				

Project Title	An analysis of dementia, mild cognitive impairment and ageing for the understanding of future care provision within rural areas of Northern Ireland				
Reference	19F-1801	Lead	Queen's University Belfast, Dr Gemma Catney		
Project Status					
Taxonomy	Data-driven understanding of cognitive health / dementia population-risk Data driven improvements to service user pathways				
Context	<ul style="list-style-type: none">Dementia risk reduction is a major and growing public health priority. While certain modifiable risk factors for dementia have been identified, there remains a substantial proportion of unexplained risk. There is evidence that environmental risk factors may explain some of this risk.By linking data on age and Dementia, this project sought to provide a detailed analysis of spatial patterns of dementia and ageing within Northern Ireland, particularly in rural areas.				
Outcomes	<ul style="list-style-type: none">The project successfully linked age and Dementia which enabled analysis of associations between dementia and ageing and a host of additional demographic and socio-economic variables (e.g. deprivation, housing tenure) and health status and outcomes (e.g. GP registrations, prescriptions, morbidities and mortality). By doing so, the project provided a better understanding of the spatial profile of current and future dementia risk across Northern Ireland.The project subsequently mapped the linked demographic and health profile data to existing healthcare services (GP practices and hospitals), offering an improved understanding of how area characteristics relate to access to healthcare. A new, publicly accessible mapping tool has been created.				
Future Actions	<ul style="list-style-type: none">Further refinement of mapping tool including incorporation of GP Intelligence Platform (GPIP) data when available will enable more granular analysis of population health data and linkage of lower level services (e.g. memory clinics) to geographic areas.Promote use of mapping tool among groups involved in dementia diagnosis, treatment, and care.Explore potential of using mapping tool for population health management.				

Project Title	Reducing inappropriate use of long-term and new antipsychotic prescriptions in people living with dementia				
Reference	CD-SCPG	Lead	Western Health and Social Care Trust, Carmel Darcy		
Project Status					
Taxonomy	Data-driven understanding of cognitive health / dementia population-risk Data driven improvements to service user pathways				
Context	<ul style="list-style-type: none">Older people living with dementia (OPWD) come into contact with multiple prescribers along their healthcare journey, and numerous studies have reported the excessive prescribing of antipsychotics in OPWD compared to the general elderly population.This project sought to collate disparate data from paper and electronic records and compile a database of c.2,500 OPWD under the care of the Western Trust's Community Mental Health Team for Older People that would record antipsychotic prescriptions, reason for prescription, duration of prescription, tolerance, use of non-drug interventions and anticholinergic burden.Ultimately the project sought to develop and refine effective medicines management interventions which could drive more appropriate antipsychotic prescribing and a reduction in overall treatment burden among OPWD.				
Outcomes	<ul style="list-style-type: none">The project successfully collated and analysed data for 1,554 older people on the Elderly Mentally Infirm (EMI) register within the northern region of the Western Health and Social Care Trust.The study found that 35% of patients on the register were in receipt of an anti-dementia drug (n=546), and that within that figure, almost 28% had a prescription for anti-psychotic medication (n=152), compared to just 7% anti-psychotic prevalence among the non-anti-dementia drug group (n=72).The study also found that over half (c.55%) of those with a prescription of anti-psychotic medication had been on the drug(s) for more than 12 months.				
Future Actions	<ul style="list-style-type: none">Use findings to prioritise medication reviews and to develop effective medicines management interventions which will result in more appropriate antipsychotic use and reduction in treatment burden.				



Dementia Analytics and Research User Group (DARUG)